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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,662	07/20/2001	Ziya Aral	61628-05744	2628

758 7590 10/21/2004

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EXAMINER
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PATEL, DHAIRYA A

ART UNIT	PAPER NUMBER
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2151

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/910,662	<b>Applicant(s)</b> ARAL ET AL.	
	<b>Examiner</b> Dhairya A Patel	<b>Art Unit</b> 2151	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 July 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 11, 14 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. Application # 09/910662 was filed on July 20, 2001. Claims 1-20 are subject to examination.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 225, 201, 220, 222, 205, 210, 265, 281, 206, 280, 281, 290. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: All reference numbers in Fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

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of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

4. Claims objected to because of the following informalities: Claims 11,14,17 are claiming dependency on claim 1 but claim does not teach "a computer program product" as indicated in claims 11,14,17. Examiner made an assumption that Claims 11,14,17 should be dependent on claim 5. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The applicant mentions "AIM driver" or "AIM driver module" or "AIM service coordinator" in the specification and the claims. It is unclear to the examiner as to what "AIM driver" or "AIM driver module" or "AIM service coordinator" is. Appropriate clarification is required.

### ***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6,9-20 rejected under 35 U.S.C. 102(e) as being unpatentable by

Ohran et al.

U.S. Patent Application Publication # US 2001/0052058 A1 (hereinafter Ohran).

6. As per claim 1, Ohran teaches a system for mirroring write operations from a local storage system onto a remote storage system, the system comprising (paragraph 60):

-an AIM driver resident in the local storage system for intercepting I/O transactions to a storage disk of the local storage system (Paragraph 78 lines 1-3) (Paragraph 77 lines 1-5), identifying a write transaction to said storage disk, making a copy of the write transaction (paragraph 63 lines 10-13), and storing said copy in a series of files that are created on a file system of the local storage system (Paragraph 78 lines 1-5); (Paragraph 60 lines 1-22, Paragraph 63 lines 1-13)

-a first AIM coordinator resident on the local storage system for invoking a file transfer system to transmit the newly created files on the local file-system of the local storage system to a file system of the remote storage system via a non-proprietary network; and (paragraph 64 lines 1-10) (Paragraph 78 lines 1-5).

- a service that sends the write transactions to a network to which a network storage system is connected.(paragraph 64 lines 1-10) (Fig. 3)

7. As per claim 2, Ohran teaches a system of claim 1 further comprising:

-a second AIM coordinator resident on the remote storage system for detecting new arrived files on the file system of the remote storage system, opening the files and reading the copies of the I/O transactions in these files (Fig. 5 step 92,94,96) (Paragraph 93 lines 11-19); and

-an AIM driver resident on the remote storage system for receiving the copies of the I/O transactions from the second AIM coordinator and issuing the transactions to a remote device connected to the remote storage system which is configured to mirror the local storage device on the local storage system (Paragraph 85 lines 1-12).

8. As per claim 3, Ohran teaches a method for mirroring write operations from a local storage system to a remote system, the method comprising the steps of:

-intercepting I/O transactions to a storage disk of the local storage system;  
(Paragraph 78 lines 1-3)

-identifying a write transactions to said storage disk; (Paragraph 78 lines 1-3)  
(Paragraph 63 lines 10-13)

-making copies of the write transaction; (Paragraph 78 lines 1-3) (Paragraph 63 lines 10-13)

-storing said copy in a series of files that are created on the local file-system of the local storage system (Paragraph 78 lines 1-3) (Paragraph 63 lines 10-13);

-invoking a file transfer system to transmit, via a non-proprietary network protocol, the newly created files from the local file-system of the local storage system to a network to which the remote system is connected; and (Paragraph 78 lines 1-5) (paragraph 64 lines 1-10)

-writing the transaction to the storage device of the remote storage system. (Fig. 3) (paragraph 64 lines 1-10).

9. As per claim 4, Ohran teaches the method of claim 3, further comprising:

-passing the copies of the I/O transactions to a driver issuing the transactions to storage device of the remote storage system, which is configured to mirror the storage device on the local storage system. (Paragraph 85 lines 1-12).

10. As per claim 5, Ohran teaches a computer program product for mirroring write operations from a local storage system to a remote system, the computer program product comprising:

- an AIM driver module for intercepting I/O transactions to a storage disk of the local storage system (Paragraph 78 lines 1-3), identifying a write transaction to said storage disk, making a copy of the write transaction (paragraph 63 lines 10-13), and storing said copy in a series of files that are created on a file system of the local storage system (Paragraph 78 lines 1-5); (Paragraph 60 lines 1-22, Paragraph 63 lines 1-13)

-a first AIM coordinator software module for invoking a configured file transfer system to transmit the newly created files it finds on the file-system of the local storage system to a file system of the remote storage system via a non-proprietary network; and (paragraph 64 lines 1-10) (Paragraph 78 lines 1-5).

-a service that sends the write transactions to a remote storage system is connected by a network. (Fig. 3) (paragraph 64 lines 1-10).

11. As per claim 6, Ohran teaches the computer program product of claim 5 further comprising:

-a second AIM coordinator software module installed on the remote storage system for detecting new arrived files on the file system of the remote storage system, opening the files and reading the copies of the I/O transactions in these files (Fig. 5 step 92,94,96) (Paragraph 93 lines 11-19); and issuing the copies of the I/O transactions to a storage device connected to the remote storage system that is configured to mirror the local storage device on the local storage system (Paragraph 85 lines 1-12).

12. As per claim 9, Ohran teaches the system of claim 1, wherein the AIM driver intercepts all I/O transactions in the system (abstract lines 1-14).

13. As per claim 10, Ohran teaches the method of claim 3, wherein intercepting I/O transactions comprises intercepting all I/O transactions in the system (abstract lines 1-14).

14. As per claim 11, Ohran teaches the computer program product of claim 5, wherein the AIM driver module intercepts all I/O transactions in the system (abstract lines 1-14).

15. As per claim 12, Ohran teaches the system of claim 1, wherein the AIM driver intercepts a formatting transaction. (Paragraph 62 lines 14-15)

16. As per claim 13, Ohran teaches the method of claim 3, wherein intercepting I/O transactions comprises a formatting transaction. (Paragraph 62 lines 14-15).



17. As per claim 14, Ohran teaches the computer program product of claim 5, wherein the AIM driver module intercepts a formatting transaction. (Paragraph 62 lines 14-15).

18. As per claim 15, Ohran teaches the system of claim 1, wherein the AIM driver intercepts a partitioning transaction (Paragraph 62 lines 6-25).

19. As per claim 16, Ohran teaches the method of claim 3, wherein intercepting I/O transactions comprises intercepting partitioning transaction (Paragraph 62 lines 6-25).

20. As per claim 17, Ohran teaches the computer program product of claim 5, wherein the AIM driver module intercepts a partitioning transaction (Paragraph 62 lines 6-25).

21. As per claim 18, Ohran teaches the system of claim 1, wherein the AIM driver intercepts a transaction affecting the content or organization of a disk (Paragraph 62 lines 6-25).

22. As per claim 19, Ohran teaches the method of claim 3, wherein intercepting I/O transactions comprises intercepting a transaction affecting the content or organization of a disk (Paragraph 62 lines 6-25).

23. As per claim 20, Ohran teaches the computer program product of claim 5, wherein the AIM driver module intercepts a transaction affecting the content or organization of a disk (Paragraph 62 lines 6-25).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claim 7,8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran in view of Cannon et al. U.S. Patent # 5,673,382 (hereinafter Cannon).

25. As per claim 7, Ohran teaches all the limitations in claim 1 but fails to teach the file comprises of a header portion that includes information on the total size of the file; an I/O control block portion which indicates address offsets where each transaction in the file is to be stored on the remotely located destination storage system, and which further indicates the size of the data for each transaction; and a data portion which contains the data for each transaction in the file.

Cannon teaches the file comprises of a header portion that includes information on the total size of the file (column 8 lines 44-46); an I/O control block portion which indicates address offsets where each transaction in the file is to be stored on the remotely located destination storage system (column 8 lines 43-44), and which further indicates the size of the data for each transaction; and a data portion which contains the data for each transaction in the file (column 8 lines 41-46).

It would have been obvious at the time of the invention to implement in the file, a header portion that includes information on the total size of the file; an I/O control block portion which indicates address offsets where each transaction in the file is to be stored on the remotely located destination storage system, and which further indicates the size of the data for each transaction; and a data portion which contains the data for each transaction in the file.

The motivation for doing so would have been to keep track of each transaction i.e. the size of the file, the size of the data for each transaction and the data portion, which contains the data for each transaction because in case of a system breakdown or a disaster recovery or transfer failure it would be easy to know if it occurred due to exceeding file capacity.

26. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohran, Cannon as applied to claim 7 above, and further in view of Durflinger et al. U.S. Patent # 5,713,014 (hereinafter Durflinger).

27. As per claim 8, Ohran and Cannon teaches everything in claim 7, but fails to teach a header portion of the file includes a pointer to the I/O control block portion and a pointer to the data portion. Durflinger teaches a header portion of the file includes a pointer to the I/O control which indicates the offset where the I/O control block portion of the file begins; and a pointer to the data portion, which indicates the offset where the data portion of the file begins. (Column 11 lines 13-37).

At the time of the invention it would have been obvious to implement a pointer to the I/O control block portion in the file header which indicates the offset where the I/O control block portion of the file begins; and a pointer to the data portion in the file header, which indicates the offset where the data portion of the file begins.

The motivation for doing so would have been to indicate where the I/O control block portion begins in the file or where the data begins in the file.

### ***Conclusion***

28. The prior art made of record and not relied upon is considered pertinent to

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applicant's disclosure.

29. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the applicant (see 35 U.S.C 133, M.P.E.P 710.02, 710.02(b))


30.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dhairya A Patel whose telephone number is 703-305-0457. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 703-305-6687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAP

  
ZARNI MAUNG  
PRIMARY EXAMINER